

CLAIMS

What is claimed is:

1. A control system for regulating a dispenser, wherein the dispenser comprises a feeder bowl and one or more dispensing paths, wherein the control system comprises:

5 a control unit for controlling each of:

a feeder bowl vibration device for vibrating the feeder bowl;

a rotation drive for rotating the one or more dispensing paths; and

at least one dispensing path vibration device for vibrating the one or more dispensing paths; and

10 one or more dispensing heads, wherein each of the one or more dispensing heads receives items from at least one of the one or more dispensing paths and comprises:

a dispensing chute for directing a first plurality of the received items toward the dispenser, wherein at least one physical characteristic of each of the first plurality of the received items is within a predetermined range of physical characteristics; and

15 a diversion chute for directing a second plurality of the received items away from the dispenser.

2. The control system of claim 1, wherein the control unit controls a rotational speed of the rotation drive, a vibration of the feeder bowl vibration device, and a vibration of the at least one dispensing path vibration device.

20 3. The control system of claim 1, wherein the control unit controls a rotational speed of the rotation drive according to a desired number of containers to be filled by the dispenser, and a vibration of the feeder bowl vibration device and the at least one dispensing path vibration device according to the rotational speed and the at least one physical characteristic of each of the items to be dispensed, such that the dispensing paths dispense the items singularly.

25 4. The control system of claim 1, wherein the at least one dispensing path vibration device comprises a plurality of dispensing path vibration devices, each of the dispensing path vibration devices vibrating one of the one or more dispensing paths, and further wherein the control unit controls a vibration of the feeder bowl vibration device and each of the dispensing path vibration devices, such that the one or more dispensing paths dispense the items singularly.

5. The control system of claim 4, wherein each of the one or more dispensing paths comprises at least one channel for dispensing items singularly.
6. The control system of claim 1, wherein the control unit controls a vibration of the feeder bowl vibration device and the at least one dispensing path vibration device in a substantially horizontal plane.
7. The control system of claim 1, wherein the control unit controls a vibration of the feeder bowl vibration device and the at least one dispensing path vibration device in a substantially vertical plane.
8. The control system of claim 1, wherein the control unit controls a vibration of the feeder bowl vibration device and the at least one dispensing path vibration device in a first plane and a second plane and wherein the first plane and the second plane are transverse to one another.
9. The control system of claim 1, wherein the control unit controls a frequency of vibration of the feeder bowl vibration device and the at least one dispensing path vibration device.
10. The control system of claim 1, wherein the control unit controls a frequency of vibration of the feeder bowl vibration device and the at least one dispensing path vibration device in a first plane and a second plane.
11. The control system of claim 1, wherein the control unit controls a magnitude of vibration of the feeder bowl vibration device and the at least one dispensing path vibration device.
12. The control system of claim 1, wherein the control unit controls a magnitude of vibration of the feeder bowl vibration device and the at least one dispensing path vibration device in a first plane and a second plane.
13. The control system of claim 1, wherein the control unit controls a frequency and a magnitude of vibration of the feeder bowl vibration device and the at least one dispensing path vibration device in a first plane and a second plane.
- 25 14. The control system of claim 1, further comprising:
a memory for storing a plurality of vibrational settings for the feeder bowl vibration device and the at least one dispensing path vibration device, wherein each of the vibrational settings is proportionate to the at least one physical characteristic of the items to be dispensed; and

an input unit for selecting one of the vibrational settings and transmitting the vibrational setting to the control unit,

wherein the control unit adjusts a vibration of the feeder bowl vibration device and a vibration of the at least one dispensing path vibration device, so that the feeder bowl dispenses the items uniformly and the one or more dispensing paths dispense the items singularly.

5 15. The system of claim 1, wherein the at least one physical characteristic of at least one of the second plurality of the received items is greater than or less than the predetermined range of physical characteristics.

10 16. The dispensing system of claim 15, wherein each of the dispensing heads further comprises at least one holding chamber, wherein the at least one holding chamber directs the first plurality of the received items to the dispensing chute, and directs each of the second plurality of the received items to the diversion chute.

15 17. The dispensing system of claim 15, further comprising means for releasing the second plurality of the received items from the one or more dispensing heads.

18. The dispensing system of claim 17, further comprising means for separating the second plurality of the received items released from the dispensing head, which have the at least one physical characteristic within the predetermined range of physical characteristics, from the second plurality of the received items released from the dispensing head, which have the at least one physical characteristic greater than or less than the predetermined range of physical characteristics.

20

19. The dispensing system of claim 18, further comprising means for delivering the second plurality of the received items released from the dispensing head, which have the at least one physical characteristic within the predetermined range of physical characteristics to the feeder bowl.

25 20. The system of claim 19, wherein the means for separating comprises at least one strainer, wherein the means for delivering comprises a conveyer.